Paper No. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL A. CHANDLER,
MARTIN MATTHIESEN and
DEREK LEONG

Appeal No. 2000-0701
Application No. 08/816,471

ON BRIEF

Before HAIRSTON, RUGGIERO and DIXON, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 6, 9, 10 and 12 through 20.

The disclosed invention relates to an electrical device that comprises a conductive polymer element that exhibits positive temperature coefficient (PTC) behavior, and at least one metal foil electrode in direct physical contact with the

conductive polymer element. The surface of the metal foil electrode that is in direct contact with the conductive polymer element has a center line average roughness of at least 1.4, and a reflection density of at least 0.70.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. An electrical device which comprises

(A) an element composed of a conductive polymer which exhibits PTC behavior; and

(B) at least one metal foil electrode which

(1) comprises a base layer, a surface layer, and an intermediate layer which is positioned between the base layer and the surface layer,

(a) the base layer comprising a first metal,

(b) the intermediate metal layer comprising a metal which is different from the first metal, and

(c) the surface layer (i) consisting essentially of a second metal, (ii) having a center line average roughness R_a of at least 1.4, and (iii) having a reflection density R_d of at least 0.70, and

(2) is positioned so that the surface layer is in direct physical contact with the conductive polymer element.

No references were relied on by the examiner.

Claims 1 through 6, 9, 10 and 12 through 20 stand rejected under 35 U.S.C.

§ 103(a) as being unpatentable over comparative example 4 (i.e., foil type 4) in view of comparative example 2 (i.e., foil type 2) (specification, page 15, Table II).[1]

Reference is made to the brief (paper number 25) and the answer (paper number 26) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1 through 6, 9, 10 and 12 through 20.

In the admitted prior art, foil type 4 with an average roughness of 1.25 and a reflection density of 0.76 is disclosed as having a base layer of copper, an intermediate layer of nickel and a surface layer of nickel. The noted foil type 2 with an average roughness of 2.0 and a reflection density of 0.65 is disclosed as having a base layer of copper, an intermediate layer of copper and a surface layer of nickel. As is apparent from the foil values, the average roughness of foil 4 is not "at least 1.4."

The examiner contends (answer, page 3) that "[i]t would have been obvious to vary the roughness to at least 1.4 where Example 4 uses 1.25 and it is known to have a roughness higher than 1.4 as Example 2 discloses, for the purpose of varying the contact resistance or adhesion, where the height of the protrusions varies the adhesive

[1] According to the examiner (answer, page 3), "[e]xamples 2 and 4 and the foil types noted are admitted prior art as noted by Applicant[s] in Paper no. 16."

properties of the electrode to polymer contact and subsequent contact resistance, as is well known in the art."

Appellants argue (brief, pages 4 and 5) that "[t]he Examiner's contention that it would be obvious to vary the roughness from the 1.25 of Example 4 to the at least 1.4 of the claimed invention does not take into account the importance of the combination of a specific roughness value with a specific reflection density," and that "[a]ppellants have identified that a particular layered structure, combined with a particular roughness and reflection density, produces an improved product, and there is nothing in either Example 4 or Example 2 or in their combination that would lead one of ordinary skill in the art to the conclusion that the specified combination of roughness and reflection density would be preferred . . . ."

We agree with appellants' arguments. In the absence of appellants' disclosed and claimed invention, there is nothing of record that teaches or would have suggested combining the disparate teachings of the two foils in Examples 2 and 4. Even if we assume for the sake of argument that it is "well known in the art" to combine the teachings of the two examples, we are still left to guess how the skilled artisan would know to select an average roughness value "of at least 1.4."

Based upon the foregoing, the obviousness rejection of claims 1 through 6, 9, 10 and 12 through 20 is reversed.

DECISION

The decision of the examiner rejecting claims 1 through 6, 9, 10 and 12 through 20 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)
JOSEPH F. RUGGIERO Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
JOSEPH L. DIXON Administrative Patent Judge	)

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